However, this non-invasive test could be performed to a larger population of Kawasaki patients described above, in a prospective study with repeated measurements and follow up at different ages to confirm the absence of cardiovascular risk.

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Clinical outcome and echographic features of patients with repaired tetralogy of Fallot and biventricular pacing.

Maxime De Guillebon (1), Pierre Bordachar (2), Xavier Iriart (1), Philippe Ritter (2), Alice Horovitz (1), Jacques Clementy (2), Michel Haissaguerre (2), Jean-Benoît Thambo (1)
(1) Hôpital Cardiologique Haut Lévêque, Service du Pr Thambo, Pessac, France - (2) Hôpital Haut Lévêque, Rythmologie, Pessac, France

Introduction: Right heart failure is a common feature in patients with repaired tetralogy of Fallot (TOF), right ventricular (RV) dysfunction and right bundle branch block (RBBB). Biventricular pacing (BVP) has been described as a potentially useful therapeutic in some cases. We aimed to investigate the clinical outcome and dyssynchrony echocardiographic characteristics of patients with repaired TOF and BVP.

Methods: A systematic retrospective study of all of the patients of CHU de Bordeaux with repaired TOF and BVP was realized. Clinical NYHA status and exercise test performance were retrieved before and 6 months after BVP. All patients benefited from an echocardiography with dyssynchrony measures in spontaneous rhythm, RV pacing and BVP.

Results: 10 patients (7 male, 36,6 ± 13 years old) were retrieved from our database. Surgical repair had occurred at the age of 7,4 ± 5,8 years. BVP was effective since 18 ± 10 months.
After 6 months of BVP were noted a significant improvement in NYHA class (1,3 ± 0,4 vs 1,8 ± 0.6, p=0.05) and exercise test capacity (93 ± 22 W vs 78 ± 14 W, p<0,05).
In spontaneous rhythm (SR), a significant inter-ventricular dyssynchrony was found (41 ± 13 ms, p<0,01) as well as late activation of RV lateral wall (electrosystolic delay: 42 ± 22 ms vs lateral LV wall and 49 ± 30 ms vs interventricular septum; p<0,01 for both). This dyssynchrony is corrected in biventricular pacing (inter-ventricular delay 8,6 ± 6,4 ms electrosystolic delays repectively 25,5 ± 13 ms and 12 ± 9 ms, p<0,01 vs SR). RV pacing is responsible for late activation of LV lateral wall (36,5 ± 30 ms)

Conclusion: BVP pacing in selected patients with repaired TOF, BVP significantly improves dyssynchrony parameters. This is associated with significative improvement of clinical status.

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Trancatheter closure of the majority of ostium secundum atrial septal defects is feasible with the adjunction of the sizing balloon-assisted technique in difficult cases.

Issam Kammache (1), Béatrice Bonello (1), Virginie Fouilloux (1), Pascal Amedro (2), Sébastien Ansaldi (3), Caroline Ovaert (1), Loic Macé (4), Gilbert Habib (3), Bernard Kreitmann (4), Alain Fraisse (1)
(1) CHU La Timone-Enfants, Cardiologie Pédiatrique, Marseille, France - (2) CHU Arnaud de Villeneuve, Cardiologie et Pneumologie Pédiatrique, Montpellier, France - (3) CHU La Timone, Cardiologie, Marseille, France - (4) CHU La Timone-Enfants, Chirurgie Thoracique et Cardiovasculaire, Marseille, France

Introduction: In our centre, device closure is the first-intention therapy for secundum atrial septal defect (ASD). In difficult cases we use a Meditech sizing balloon to optimize position of the device. We sought to determine (1) the efficacy of this sizing balloon-assisted technique (SBT) and (2) the percentage of ASDs that can be percutaneously closed.

Patients: In 2009, 65 patients (37 female) were referred for secundum ASD closure, at a median age and weight of 27.5(0.8 to 88) years and 40.6(5.6 to 97) kg, respectively. Six had pulmonary hypertension.

Results: Eight patients had surgical closure because of referral cardiologist and/or patient's choice. Among the 57 remaining patients, 4 were unsuitable by echocardiography and surgically closed. Transcatheter closure was attempted in 53 cases, including 28 children (53%), and was successful in 50 cases, including 10 with SBT (20%). Amplatzer devices were used in all the patients with a median Amplatzer septal occluder (ASO) size of 20 (10 to 40)mm. A 12 mm ASO could not be positioned in a 5.6 kg infant. Surgical closure was contraindicated for poor general condition (former 26 weeks premature baby with severe bronchodysplasia). Transcatheter closure failed in 2 cases, despite SBT. No major complication occurred. Five patients (10%) had a trivial residual shunt. By univariate analysis, the deficiency of superior rim (<5mm from the defect) and a large ASD size were associated with the use of SBT (p= 0.04 and 0.002, respectively). The deficiency of superior rim and pulmonary hypertension (mean > 25mmHg) were associated with failure to percutaneously close the ASD (p= 0.02 and 0.03, respectively). Out of 57 patients candidates for transcatheter closure, 50 were successfully closed percutaneously (87%).

Conclusion: Transcatheter closure of ASD is successfully accomplished in the majority of the cases. The SBT is safe and useful for device positioning and delivery in patients with large ASDs and deficient superior rim.

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Interventional catheterization in the management of diffuse congenital pulmonary vein stenosis (PVS) in the infants and small children.

Issam Kammache (1), Virginie Fouilloux (1), Thomas Cuisset (2), Beatrice Bonello (1), Loic Mace (1), Bernard Kreitmann (1), Alain Fraisse (1)
(1) Hôpital de la Timone, Cardiologie Pédiatrique, Marseille , France - (2) Hôpital de la Timone, Cardiologie Adultes, Marseille, France

Introduction: Diffuse pulmonary vein stenosis (PVS) is a profoundly debilitating disease, leading to right ventricular failure and death. We sought to determine whether transcatheter interventional approach may improve patient's survival.

Patients: Since 2005, 4 children presented with PVS, congenital in 3 cases, including one associated with single ventricle (SV). One patient had acquired PVS after repair of total anomalous pulmonary venous connection. Surgical repair of the PVS was performed in 3 patients, who underwent 2, 3 and 4 operations, respectively. All of them developed restenosis within 3 to 10 weeks (median: 5.5 weeks). In one patient, former 26 weeks premature baby with severe bronchopulmonary dysplasia, surgery was contraindicated and transcatheter therapy considered first.

Results: Six catheterizations were performed in the 4 patients at a median age and weight of 18 (6 to 28) months and 7.7(4.6 to 9.3)kg, respectively. Eleven interventions were performed, including high pressure balloon dilation (n=5), bare stent implantation (n=3) and drug-eluting stent implantation (n=3). One patient had bare stent implantation with coated-balloon dilation as a hybrid procedure. High pressure balloon dilation failed in all cases. Stent implantations were successful in all cases. One patient with right ventricular failure died. The 3 remaining patients improved their functional status. The patient with SV had heart-lung transplantation 6 months after drug-eluting stent implantation. She subsequently died from postoperative infection. Two patients are alive and being well, 4 and 16 months after stent implantation.

Conclusion: Transcatheter management may prolong survival or can be successful as a bridge to heart-lung transplantation. This should be consider as an interesting alternative of surgery.

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Agenesis of the ductus arteriosus : combination with pulmonary artery hypertension

François Godart (1), Thameur Rakza (1), Laurent Storme (2), Adelaïde Richard (1), Rachid Bouallal (1), Charles Francart (1)
(1) Hôpital Cardiologique, Service des Maladies Cardiovasculaires Infantiles et Congénitales, CHRU de Lille, Lille Cedex, France - (2) Hôpital Jeanne de Flandre, Service de Réanimation Néonatale, CHRU de Lille, Lille, France

Agenesis of the ductus venosus is a rare anomaly that may be responsible of cardiomegaly and hydrops in fetuses. We report 2 cases in combination with pulmonary artery hypertension (PAH).

Agenesis of ductus venosus was diagnosed in 2 boys at the second term of pregnancy. None had associated hydrops. Chromosomal karyotyping was

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